



# **Statewide Interoperability Executive Committee**

## **Standard Operating Procedure**

### **Arizona Interagency Radio System (AIRS) Improvement and Sustainability Plan**

**Effective Date: XX/XX/20XX**

Distribution Statement: This is a public document. The Point of Contact (POC) for this document is the Public Safety Interoperable Communications (PSIC) Office in the Arizona Department of Administration – Arizona Strategic Enterprise Technology Office (ADOA-ASET). Current contact information for the PSIC Office can be found at [www.azpsic.gov](http://www.azpsic.gov).

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## Record of Changes

This Record of Changes is used to record revisions to this document, including a brief description of the changes made, the date the changes went into effect by approval of the SIEC, and the appropriate PSIC Office Contact.

Change No.	Date	Description	PSIC Office Contact
0	X/XX/20XX	Initial Approval by the SIEC	Name Here

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# **1 Introduction**

## **1.1 Background**

The Arizona Interagency Radio System (AIRS), provides interoperable communications to all 15 counties in the State utilizing a suite of full-time, cross-banded repeaters (i.e. VHF, UHF, and 800 MHz) designated specifically for multi-agency use across the State of Arizona. AIRS is designed to provide interoperable communications capability to first responders of Police, Fire, and Emergency Medical Service (EMS) agencies, as well as other personnel of municipal, county, State, Tribal, and Federal agencies performing public safety or public service activities. The Department of Public Safety (DPS) may also determine that selected Non-governmental Organizations (NGOs) performing public safety or public service activities are eligible for approval to use AIRS.

AIRS radio frequencies are to be used in the event of a multi-agency operation requiring the use of the common state radio channel(s), specifically for the use of coordinating activities during identified incidents. AIRS frequencies are not designed to be used by a single agency for routine public safety operations.

Governance of AIRS has been formalized with an AIRS Memorandum of Understanding (AIRS MOU)<sup>1</sup>, as well as the AIRS Standard Operating Procedure (AIRS SOP)<sup>2</sup>. Agencies and organizations wishing to operate on AIRS must sign the MOU with DPS, which holds the licenses for AIRS frequencies and must follow the procedures in the AIRS SOP developed by the Statewide Interoperability Executive Committee (SIEC).

## **1.2 Purpose**

The purpose of this procedure is to establish requirements for the integration of locally procured AIRS site communications infrastructure into the AIRS system in order to improve the overall coverage of AIRS in Arizona. The procedure outlined in this document provides guidance for initial requests for new AIRS site approvals and documents ongoing maintenance responsibilities if new sites are approved.

## **1.3 Scope**

This procedure applies to all organizations that desire additional AIRS coverage in their region and are willing to purchase and install equipment to expand that coverage.

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<sup>1</sup> [http://www.azpsic.gov/library/airs/AIRS\\_MOU.pdf](http://www.azpsic.gov/library/airs/AIRS_MOU.pdf)

<sup>2</sup> [http://www.azpsic.gov/library/airs/Arizona\\_AIRS\\_SOP\\_01112012.pdf](http://www.azpsic.gov/library/airs/Arizona_AIRS_SOP_01112012.pdf)

## **1.4 References**

This document references the AIRS SOP and AIRS MOU, available online at: [www.azpsic.gov/library/airs/](http://www.azpsic.gov/library/airs/).

## **1.5 Administration**

Arizona's Public Safety Interoperable Communications (PSIC) Office, with guidance from SIEC and DPS, is responsible for administering this procedure.

## **1.6 Document Terminology**

The terms "shall," "must," "will," and "required" are used throughout this document to indicate required parameters and to differentiate from recommended parameters. Recommendations are identified by the words "should," "desirably" and "preferably."

## **1.7 Updates & Revisions**

This document will be reviewed annually and updated as needed. Those wishing to suggest revisions or additions to this document should send their feedback electronically to [psic@azpsic.gov](mailto:psic@azpsic.gov) or in writing to the PSIC Office, c/o Arizona Strategic Enterprise Technology (ASET) Office at 100 N 15th Avenue, Suite 400, Phoenix, AZ 85007.

Revisions to this document will be reviewed by DPS and the SIEC Technical Working Group, who can then recommend appropriate changes to the SIEC. Revised versions of this document will only be effective once approved by the SIEC.

## **2 Requesting Agency Responsibilities**

An agency requesting expanded AIRS coverage in their region is responsible for all funding, site location, equipment purchases, installation and ongoing maintenance to enable such coverage. The agency must work in conjunction with the SIEC and DPS to obtain guidance and approval before proceeding with any AIRS project execution.

### **2.1 Budget and Funding**

The requesting agency will be responsible for all budgetary items involved in the project. Prior to requesting grant funds, the requesting agency should ensure that DPS coordination (as outlined in this procedure) has been completed and support has been garnered from other agencies within the region. The requesting agency should also notify the PSIC Office in advance of any planned Homeland Security grant requests for the project.

### **2.2 Site Location Identification**

Prior to requesting DPS input regarding the project, the requesting agency should review the AIRS coverage maps to assist in identifying optimal site placement based on coverage. County wide coverage maps, as well as detailed .KML data files generated during a drive test of the

AIRS system are available for review on the PSIC website [www.azpsic.gov/library/airs/drive\\_test.htm](http://www.azpsic.gov/library/airs/drive_test.htm). These maps and data files provide an overview of the coverage around the state, including information on portable and mobile coverage.

The requesting agency is responsible for determining site location(s), availability, and access; propagation modeling; permitting and for gathering appropriate permissions from landowners for equipment installation.

### **2.3 Infrastructure Equipment**

The requesting agency must identify project equipment in accordance with DPS requirements. DPS requires backhaul and minimum equipment specifications be met to interface and ensure compatibility with the existing AIRS system. Due to critical public safety usage, the requesting agency should ensure redundancy is addressed. Equipment lifecycle should also be considered during the budgeting and procurement phase of the project.

The normal backhaul requirement is for a 4-wire audio circuit with E&M signaling. Specific requirements will be discussed with the proposing agency based on their selected communications site and availability of access to the DPS microwave network.

Each AIRS Suite must consist of three repeaters, one for each band (VHF, UHF, & 800 MHz). Agencies are encouraged to use Top-Tier radios in order to guarantee system reliability. The system is designed to use a 6-wire audio bridge to tie the three base stations and the backhaul together. DPS currently uses an Omnitronics 619EI bridge for this purpose.

Specific additional requirements/recommendations for transmit power, antenna gains, and other technical parameters will be determined after completing an engineering analysis of the desired coverage area and the proposed communications site(s) and antenna locations.

### **2.4 Maintenance**

AIRS is maintained by multiple servicing entities; a failure of a portion of the system may impact users beyond the failed portion of the system. Each site and each piece of equipment is considered as “owned” by the installing agency. The individual owners are responsible for the maintenance and repair of all site infrastructure and equipment that they own. Agreements between the owners and/or maintenance contractors are at each agency’s discretion, but the owner is still ultimately responsible for their portion of the system.

The maintenance levels for the AIRS system must be set to protect the overall functionality and integrity of the system for all users. Improper maintenance poses a risk to the operational functionality of the AIRS system. Individual agencies or their contractors will maintain the equipment that they are responsible for.

Equipment and location issues will be reported to the DPS Network Operations Center (NOC) as soon as feasible. Equipment at shared sites will be labeled to indicate agency ownership. FCC licenses or reference to the location of the licenses will be posted at each site. Current copies of all as-built documentation will be maintained at each site and with the DPS NOC.

Due to the remote locations of the AIRS sites the access conditions, methods and seasonal changes, it is not possible to require specific or guaranteed service restoration times. It is however reasonable and necessary to request owning agencies to target service restoration times that do not exceed ten days. If restoration is to exceed the ten day period the owning agency will notify the DPS NOC and the SIEC in writing.

Standards in preventative maintenance protect the integrity of the system. Preventative maintenance will be performed no less than once a year, preferably twice a year. Owners are responsible for maintaining appropriate spare modules, boards, field replaceable units for the equipment and ensuring it is properly inventoried and maintained. Owners must immediately notify the DPS NOC of any preventative maintenance issue that may impact other portions of the system or users. Battery maintenance and replacement plans must be in place.

### **3 DPS Responsibilities**

#### **3.1 Site Documentation**

DPS Engineering will maintain expansion site documentation which will include infrastructure equipment configuration as-built documentation, as well as current configuration documentation of equipment hardware, firmware, circuit routes and software. The “owning” agency will also keep copies of this information at each site. Any changes or alterations to this information will be immediately forwarded to DPS Engineering. This information should not be released to the general public without prior notification and approval of the DPS Wireless Services Bureau (WSB) Management.

#### **3.2 System Status**

The DPS NOC is responsible for maintaining information on the status of the overall system. Maintenance activities, whether planned or unplanned, that may impact the subscribers usage of the system; will require notification by the agency to the DPS NOC within a week of the start date.

#### **3.3 Contact Information**

Agency contact information must be kept up to date with the DPS NOC (see Appendix A). Keeping contact information current and readily available to the DPS NOC will facilitate day to day communications; notification of the owning agency for equipment/location issues and contacting support staff in the event of a system failure. The contact list shall include listings such as internal support staff, subcontractors, dispatch centers (24/7 number) and building security contact information.

The contact information will include agency name, functional role, work address, contact phone numbers (work, home, and cell) and e-mail address. Contact information will not be released to the public or media to prevent compromising the safety of the staff. Any changes shall be sent to the DPS NOC.

## **4 AIRS Infrastructure Expansion Approval Procedure**

It is recommended that requesting agencies review this document in full, as well as the Arizona AIRS SOP, prior to any project activities.

### **4.1 Site Application Form**

Once a site(s) has been identified, the requesting agency must submit a Site Application Form to DPS. The Site Application form is available from DPS WSB in an Excel format and on the PSIC website at: [www.azpsic.gov/library/airs/](http://www.azpsic.gov/library/airs/). This form is the basis of a predicted propagation model and is used to drive technical engineering considerations. Once completed, the form must be sent to DPS WSB at [wsb\\_noc@azdps.gov](mailto:wsb_noc@azdps.gov).

### **4.2 Meeting with DPS**

Following submission of the Site Application Form, the requesting agency should request a meeting with a DPS Telecommunications Engineer who will identify potential interference issues, provide coverage maps and make recommendations.

### **4.3 Intergovernmental Agreement**

To ensure the integrity of the AIRS system, the requesting agency will be required to sign an Intergovernmental Agreement (IGA) with DPS once the project has been approved by the SIEC. The IGA will be drafted by DPS. The negotiated draft IGA should be submitted as part of the AIRS Infrastructure Expansion documentation.

### **4.4 Notifications; Support Documentation**

The requesting agency should notify neighboring agencies and keep documentation of such notifications. Documentation identifying who and how agencies were notified should be included in the request to SIEC. The requesting agency should also notify the PSIC Office of the proposed project at [psic@azpsic.gov](mailto:psic@azpsic.gov).

The requesting agency should request Support letters from the appropriate AZ Department of Homeland Security Regional Advisory Council and their Regional Interoperability Committee (RIC) and/or neighboring agencies/jurisdictions. These support letters will be submitted to the SIEC as part of the approval process.

### **4.5 Documentation Checklist**

Documentation must be submitted to the PSIC Office at least six weeks prior to the scheduled SIEC meeting at which the agency wants their project reviewed for approval. Documents may be submitted either electronically to [psic@azpsic.gov](mailto:psic@azpsic.gov) or by mail or in person to the PSIC Office, c/o Arizona Strategic Enterprise Technology (ASET) Office, 100 N 15th Avenue, Suite 400, Phoenix, AZ 85007. The requesting agency must provide the following documentation:

1. A letter from the requesting agency, outlining the expansion project, including:
  - a. Proposed location



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- b. The agency single point of contact for the project
  - c. Funding mechanism and project budget
- 2. A DPS signed AIRS MOU
- 3. DPS approved Site Application Form
- 4. DPS input and system documentation, design and equipment list
- 5. A draft AIRS IGA negotiated with DPS (pending project approval by SIEC prior to signature)
- 6. Documentation of notifications to neighboring agencies
- 7. Support letters from the AZ Department of Homeland Security Regional Advisory Council
- 8. Support letters from the Regional Interoperability Committee (RIC), and/or neighboring agencies

### **4.6 Public Comment**

The PSIC Office will distribute and post non-confidential project information submitted by the requesting agency to the PSIC Office website for a two week public comment period.

The PSIC Office will provide comments received from the public to the requesting agency, DPS and to the SIEC for consideration.

### **4.7 SIEC Technical Workgroup Review**

The SIEC Technical Workgroup will review the provided documentation and public comments to determine viability of the proposed Infrastructure Improvement Request. The Technical Workgroup will present findings to the SIEC with a recommended course of action.

## **5 SIEC Review and Possible Approval**

The PSIC Office will place the request on the next SIEC agenda. The SIEC will review all documentation and public comments. The requesting agency is encouraged to attend the meeting to provide answers and/or clarification to the SIEC. The PSIC Office will submit a letter to the requesting agency indicating if the SIEC approved or denied the request, or if additional information is needed.

## Appendix A – DPS Contact Information

DPS Network Operations Center (NOC) 602-223-2245	
Email Notification: <a href="mailto:wsb_noc@azdps.gov">wsb_noc@azdps.gov</a>	
Mr. Scott Tillman Telecommunications Engineer Wireless Systems Bureau Arizona Department of Public Safety 602-223-2275	Ms. Melody Guest Administrative Assistant Wireless Systems Bureau Arizona Department of Public Safety 602-223-2247

## Appendix B – Glossary

Acronym	Definition
AIRS	Arizona Interagency Radio System, formerly referred to as the Interagency Radio System (IARS) or as the Arizona Emergency Radio System (AERS)
DPS	Department of Public Safety
EMS	Emergency Medical Services
FCC	Federal Communications Commission
IGA	Intergovernmental Agreement
MOU	Memorandum of Understanding
NGO	Non-governmental Organization
NOC	Arizona Department of Public Safety, Wireless Systems Bureau, Network Operations Center
POC	Point of Contact
PSCC	The Public Safety Communications Advisory Commission provides recommendations to the PSIC Office on the development of standards based systems providing interoperability for public safety agencies' communications statewide
PSIC Office	Public Safety Interoperable Communications Office responsible for advancing interoperable communication in Arizona and supporting the PSCC and the SIEC in the performance of their missions.
RIC	Regional Interoperability Committee
SIEC	The Statewide Interoperability Executive Committee is the sub-committee of the PSCC responsible for technical and operational recommendations to the PSCC. The SIEC manages the 700 MHz, UHF and VHF spectrums, and has operational oversight of AIRS.
SOP	Standard Operating Procedure
UHF	Ultra High Frequency
VHF	Very High Frequency
WSB	Arizona Department of Public Safety, Wireless Systems Bureau which has engineering and maintenance responsibility for AIRS.